UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,705	12/11/2000	Shinji Koyano	Q62174	2917

7590 12/21/2001

SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3202

EXAMINER	
GRIER, LAURA A	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 12/21/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/732,705	KOYANO ET AL.	
	Examiner	Art Unit	
	Laura A Grier	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noro et al., U. S. Patent No. 4969195, in view of Tanaka et al.

Noro et al. discloses an impedance compensation circuit in a speaker driving system. Noro et al. (hereinafter, Noro) discloses a speaker (figure 1-reference 3), which reads on a speaker; a detection element (figure 1-reference 1); and a feedback circuit coupled with an adder for positively feeding back an output to the amplifier to drive the speaker (col. 3, lines 33-36), which reads on a positive feed back means. However, Noro's detection element fails to specifically disclose detecting an amplitude value of a diagphram of the speaker. The examiner maintains that such a detecting means was well known in the art.

Regarding the amplitude detecting means, Tanaka discloses a bass reproduction speaker apparatus. Tanaka's disclosure comprises a detector and/or detection circuit for detecting a vibration of a moving system of the speaker unit (column 5, lines 8-12; column 13, lines 24-25 and 34-40 and figures 1-10, in particular figure 1) which is indicative of detecting the displacement/amplitude of a diaphragm.

It would have been obvious for one of the ordinary skill in the art at the time the invention was made to modify the invention of Noro by incorporating an amplitude detection means for the purpose of detecting the desired characteristics of the speaker as taught by Tanaka, thus to improve the audio characteristics of the speaker output.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Noro et al., in view of Yokoyama.

Regarding **claim 4**, Noro et al. discloses an impedance compensation circuit in a speaker driving system. Noro discloses a speaker (figure 1-reference 3), which reads on a speaker; a detection element (figure 1-reference 1); and a feedback circuit coupled with an adder for positively feeding back an output to the amplifier to drive the speaker (col. 3, lines 33-36), which reads on a positive feed back means. However, Noro's detection element fails to specifically disclose detecting an amplitude value of a diagphram of the speaker. The examiner maintains that such a detecting means was well known in the art.

Regarding the amplitude detecting means, Yokoyama's disclosure comprises a resonator having a passive diaphragm (column 6, lines 52-54; column 15, lines 26-37

and 56-63; and figures 1 and 8), a motional signal detecting circuit for detecting the movement of the diaphragm such as velocity, deviation (amplitude and/or displacement), thus constituting as a amplitude detecting means.

It would have been obvious for one of the ordinary skill in the art at the time the invention was made to modify the invention of Noro by incorporating an amplitude detection means for the purpose of detecting the desired characteristics of the speaker as taught by Yokoyama, thus to improve the audio characteristics of the speaker output.

5. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Noro and Yokoyama (hereinafter, Noro-Yokoyama).

Regarding **claim 2**, Noro-Yokoyama discloses everything claimed as applied above (see claim 1). Noro further discloses an integrator, indicative of the integrating means. However, Noro fails to specifically disclose a velocity detecting means. The examiner maintains that such detecting means was well known in the art. Yokoyama further teaches detector means comprising a system of detecting (column 15, lines 31-37 and 56-63) indicative of a velocity detecting means. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Noro by incorporating a velocity detecting means for the purpose of detecting the velocity of the speaker .

6. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Noro-Yokoyama in view of Klippel and further in view of Kim et al.

Regarding **claim 3**, Noro and Yokoyama discloses everything claimed as applied above (see claim 2). Regarding the integrating means, in a similar field of endeavor, Klippel discloses an adaptive arrangement for correcting the transfer characteristic of an electrodynamic transducer without additional sensor. Klippel discloses in figure 8, an integrator (87) or a filter with low pass characteristics (column 7, lines 59-61) which is indicative of a LPF acting as an integrator.

Further, Kim et al. discloses a method and apparatus for controlling noise generated in confined spaces. Kim et al. teaches the combined connection of an integrated with a low pass filter processing a velocity signal (column 5, lines 11-17).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the acoustic apparatus of Noro-Yokoyama by implementing an integrator/low filter means as taught by Klippel for the purpose of integrating the velocity signal, wherein the filter process includes outputting low frequency components of the signal.

Regarding **claim 4**, Noro-Yokoyama discloses everything claimed as applied above (see claim 3). Noro inherently provides support of the claimed limitation in col. 3, lines 30-51.

7. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Noro-Yokoyama in view of Klippel and further in view of Kim et al. (hereinafter, Noro combination).

Regarding **claim 5**, the claimed limitations are rejected for the same reasons set forth in claims 1-3 combined, wherein the limitations of the low pass filter are inherently taught.

Regarding **claim 6**, the Noro combination discloses everything claimed as applied above (see claim 5). The claimed limitation is interpreted and rejected for the same reasons set forth in claim 4.

Regarding **claim 7**, the Noro combination discloses everything claimed as applied above (see claim 5). Yokoyama further discloses the operational characteristics comprising velocity.

8. **Claims 8-10 are** rejected under 35 U.S.C. 103(a) as being unpatentable over Noro combination.

Regarding **claims 8 and 9**, the claimed limitations are rejected for the same reasons set forth in claims 5 and 6 combined, wherein the limitations of the low pass filter are inherently taught.

Regarding **claim 10**, the Noro combination discloses everything claimed as applied above (see claim 8). Yokoyama further discloses the operational characteristics comprising velocity.

9. **Claims 11 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Noro et al., in view of Yokoyama.

Regarding **claims 11 and 15**, Noro et al. discloses an impedance compensation circuit in a speaker driving system. Noro discloses a speaker (figure 1-reference 3), which reads on a speaker; a detection element (figure 1-reference 1); and a feedback circuit coupled with an adder for positively feeding back an output to the amplifier to drive the speaker (col. 3, lines 33-36), which reads on a positive feed back means; and an integrator (reference 52). However, Noro's detection element fails to specifically disclose detecting an amplitude value of a diagphram of the speaker. The examiner maintains that such a detecting means was well known in the art.

Regarding the amplitude detecting means, Yokoyama's disclosure comprises a resonator having a passive diaphragm (column 6, lines 52-54; column 15, lines 26-37 and 56-63; and figures 1 and 8), a motional signal detecting circuit for detecting the movement of the diaphragm such as velocity, deviation (amplitude and/or displacement), thus constituting as a amplitude detecting means.

It would have been obvious for one of the ordinary skill in the art at the time the invention was made to modify the invention of Noro by incorporating an amplitude detection means for the purpose of detecting the desired characteristics of the speaker as taught by Yokoyama, thus to improve the audio characteristics of the speaker output.

Regarding **claims 12 and 16,** Noro-Yokoyama discloses everything claimed as applied above (see claims 11 and 15). The claimed limitations are inherently taught and thus rejected for the same reasons above in claim 8.

Regarding **claim 13**, Noro-Yokoyama discloses everything claimed as applied above (see claims 11). The claimed limitation are rejected for the same reasons above in claim 6.

Regarding **claim14 and 17**, Noro-Yokoyama discloses everything claimed as applied above (see claims 15). The claimed limitation are rejected for the same reasons above in claim 7.

Response to Arguments

10. Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

The applicant essential argues that prior art used fails to teaches the limitation of a positive feedback means. The examiner accepts the applicant's arguments. However, the prior art is still considered in the rejections, specifically for the purpose of providing support of an amplitude detection means. Further has also provided other prior art in the same concept of a speaker system that teaches detection means of the speaker and means of positive feedback to support the claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

LAG
December 15, 2001

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2700